



BENZODIAZEPINE POISONING CASES: A RETROSPECTIVE STUDY FROM FAISALABAD, PAKISTAN

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ABSTRACT

The present study was designed to investigate the prevalence of self poisoning with benzodiazepine on the basis of gender, causes of self poisoning and management of poisoning cases in Allied hospital, a tertiary care public teaching hospital in Faisalabad Pakistan. The study revealed that 53.4% males and 46.6% females, who self-poisoned with benzodiazepines were admitted in emergency department of the hospital from January 2009 to December 2009. However, the case record files did not contain data on the causes of poisoning, which was a major error noted in the study. The patients were treated with activated charcoal, gastric lavage and other symptomatic treatments instead of treating with standard antidote, flumazenil injection. Survival rate of male poisoning cases was 98.6% as compared to the 100% in female cases.

Keywords: Benzodiazepines, Poisoning, Antidote

INTRODUCTION

According to Uchibayashi (2007) as cited by Raoof *et al* (2008), Leo Sternbach (1908–2005) is known as the pioneer of benzodiazepine tranquilizers. His discovery of chlordiazepoxide in 1957 led to the introduction of a large number of similar compounds in clinical practice, being the most successful drugs ever used (Carlos and Emiolo, 2004; Uchibayashi, 2007; Raoof *et al.*, 2008). Today, benzodiazepines are amongst the most widely used group of drugs worldwide because of their multiple therapeutic actions as anxiolytics, sedative hypnotics, anticonvulsants and muscle relaxants (Gaudreault *et al.*, 1991; the Royal College of Psychiatrists, 1997; Kapczinski *et al.*, 2001; De las Cuevas and Sanz, 2004). In recent years benzodiazepine showed efficacy in the treatment of panic disorder and catatonia (Laux, 1995). Benzodiazepine showed dependence with very high dose of chlordiazepoxide, it was discovered in the early sixties but it gained attention in the medical community since

the late seventies with increasing number of reports of withdrawal symptoms (Pelissolo and Bisserbe, 1994).

The occurrence of the benzodiazepine dependence and withdrawal symptoms is directly dependant on the duration of drug use (Lader, 1984a). Patients using these drugs for four months or more may develop withdrawal symptoms, characterized by anxiety, malaise, dysphasia, depersonalization, and perceptual changes such as hyperacusis and unsteadiness (Lader, 1984b). Although they are considered safe and are generally well-tolerated, there is a considerable risk of misuse and abuse of benzodiazepines (Kapczinski *et al.*, 2001). Benzodiazepine prescription and usage is regulated in most developed countries. However in developing countries, like Pakistan these drugs are easily available without prescription (Kapczinski *et al.*, 2001; Khan and Reza, 1998; Khawaja *et al.*, 2005).

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According to several studies, the ingestion of high doses of benzodiazepines is the most common way of self poisoning for suicidal attempts which accounts for 30-40% poisoning cases in the developed countries (McGrath, 1989; Schwarz *et al.*, 2004). In Pakistan more than 80% of self poisoning cases are due to benzodiazepine overdose, a fact which can be generalized to most developing nations as well (Khan and Reza, 1998).

The aim of present study was to observe the prevalence of self poisoning with benzodiazepines on the basis of gender, causes of self poisoning, management of poisoned cases in a public sector hospital of Pakistan.

MATERIALS AND METHODS

The retrospective study was conducted in Allied Hospital, one of the tertiary care teaching hospitals, in Faisalabad, Pakistan.

Inclusion criteria

All the cases of benzodiazepine poisoning reported during the period of January 2009 to December 2009 in the Allied hospital were included in this study.

Data collection

Data were collected, on the data collection forms from the medical case files. Demographic information and data on the cause of poisoning were recorded. The causes of poisoning were categorized as ingestion of high dose of benzodiazepines, deliberate, accidental, occupational and/or therapeutic dose. The patient's tolerance to the high dose of drug which caused poisoning, treatment record, survived cases was also noted.

Statistical analysis

The data were analyzed using SPSS (version 15.0). The Chi-square test was used to note statistically significant associations wherever appropriate. A p-value <0.05 was considered significant.

RESULTS

The present study included 281 benzodiazepine poisoning cases reported during January 2009 to December 2009 in Allied Hospital, Faisalabad. These cases of poisoning were admitted to the emergency ward of the Hospital during the study period. The male cases of poisoning were 53.4% compared to 46.6% female cases. Majority (77.9%, n = 219) of patients were between age of 14-30 years, 18.9% (n = 53) between 31-45 years and only 3.2% (n = 9) were between the age of 46-80 years (Table I).

Four (1.4%) male patients reported to be died while all (100%) females survived (Table II). The gender, age groups (Table I) and the survival rate between the gender

(Table II) was significantly differed (p = 0.001). The case files did not contain any information on the causes of self poisoning.

Table I: Patient's demographic information

Parameters	n (%)	p-value	
Gender	Male	150 (53.4)	0.001
	Female	131 (46.6)	
Age (Year)	14-30	219 (77.9)	0.001
	31-45	53 (18.9)	
	46-80	9 (3.2)	

Table II: Number and percent of self poisoned cases survived and died

Gender	Condition		p-value
	Survived n (%)	Died n (%)	
Male	146 (52)	4 (1.4)	0.001
Female	131 (46.6)	0	

DISCUSSION

Self-harming behavior of humans has been noticed since ancient times (Bhugra and Desai, 2002). Attempted suicide or deliberate self-harm is a major public health problem to be addressed like any other medical issues. The term deliberate self harm (DSH) is often used to describe behaviors through which people inflict acute harm upon themselves with non-fatal outcome, when the behaviors are somewhat linked to, but do not result in death. Some worse life events can instigate the person towards deliberate self harm. The three commonest reported causes are a recent quarrel, poor communication with parents and rejection of love. Other notable factors are chronic physical illness, poverty and interpersonal problem (Mamun *et al.*, 2008). In Pakistan 84% self-poisoning cases are due to benzodiazepine overdose (Khan and Reza, 1998). The present study included 281 benzodiazepine poisoning cases reported during January 2009 to December. The majority of the self poisoned patients were between the age of 14-30 years, a finding consistent with the study of Mamun *et al.* (2008).

Although flumazenil is the only antidote for benzodiazepine poisoning but it was not revealed to be used in the treatment of benzodiazepine poisoning during this study. It may be due to the high cost of the antidote and low socioeconomic status of patients. Chyka and Seger (1997) suggested that based on the available volunteer studies, activated charcoal is more likely to produce benefit if it is administered within the first hour

after ingestion of benzodiazepine. In our study, patients were treated with activated charcoal, gastric lavage and other symptomatic treatments within one hour of ingestion.

In this study, no data were found, in case files regarding cause of poisoning, this was a major error that was noted during study. The reasons for self poisoning should be included. The data on the reasons for the self poisoning could be of interest for the social scientists to address this communal uncontrollable issue. Such studies should be carried out in various public and private hospitals throughout the country with respect to prevalence on gender based, pattern of prescription and treatment protocols.

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